ELECTRIC LIGHT & POWER

EL&P

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VOICE OF THE ELECTRIC UTILITY INDUSTRY

PP&L is Utility of the Year

BARRINGTON, IL—Pennsylvania Power & Light Co., headquartered in Allentown, PA, has been named Electric Utility of the Year for 1990. The company is the 22nd utility to be selected for the annual honor, initiated in 1969.

PP&L was selected for outstanding performance on behalf its three publics...customers, employees and shareholders. Selection of the company was by the *Electric Light & Power* editorial staff after an extensive review of the entire investor-owned segment of the electric utility industry.

See *EL&P's* complete report on Pennsylvania Power & Light, Electric Utility of the Year, p. 19.

"PP&L has performed well for its customers over a long period of time," said *EL&P* Editor-in-Chief Robert Lincicome, "and has played a strong role in supporting and developing the economy of its service territory. It has been a leader in using marketing programs to reduce its costs and provide additional value from its service in the highest tradition of the industry."

The utility's earnings, dividends, stock price and book value were at record levels at the end of 1989, and its cash flow is among the industry's highest. These performances illustrate the level of the company's financial recovery from the period when it was constructing its $4-billion two-unit nuclear plant, Susquehanna.

Large service territory

Pennsylvania Power & Light serves more than 1.1-million customers in a 10,000 square-mile area in East-Central Pennsylvania. It posted record years for earnings in 1988 and 1989 and is well-positioned to continue growth for the balance of the '90s.

For 1989, PP&L earned $4.05 per share, an 8.58-percent gain, 22nd best among the Top 100 investor-owned electric utilities. The company's net income of $353.4 million reflects an improvement of 6.4 percent from 1988.

The last base rate increase granted PP&L was in 1985. In fact, rates this year are lower than they were in 1986. PP&L has pledged it will not ask for another rate hike before 1993, which will make it eight years between increases.

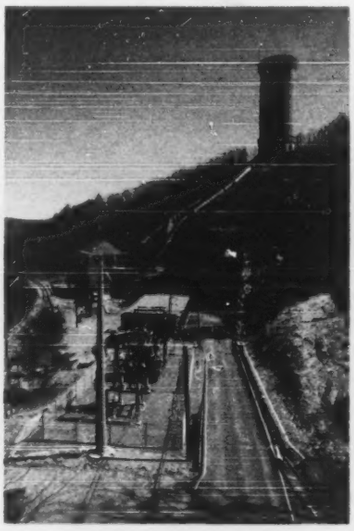
A key to its winning performance is effective cost management, which employs a variety of programs to stimulate improved productivity among employees and hold the line on expenses.

Winter peaking...by choice and effort

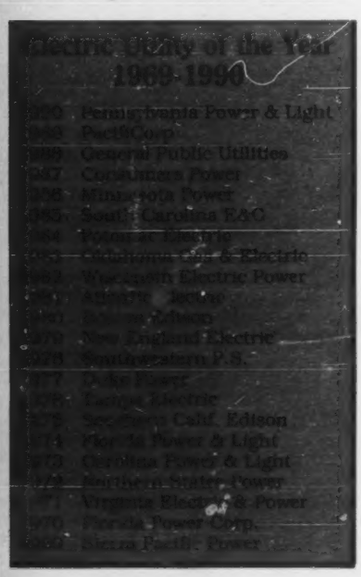
PP&L has worked hard to become a winter-peaking utility, which has allowed it to benefit substantially from seasonal interchange arrangements with neighboring utilities in the Pennsylvania-New Jersey-Maryland power pool. This change to a winter peak also has allowed PP&L management to postpone capacity additions.

To bring about the peak switch, the utility went into a heavy marketing mode, honing its skills to a fine edge under former Chairman Jack Busby in the 1960s and 1970s.

When Busby retired in the late '70s, the company reached outside the industry for a new leader, Robert K. Campbell. Campbell led the company through the growth years of the '80s. He died suddenly last summer. John T. Kauffman, current chairman, president and chief executive officer, continues the marketing thrust.



PP&L's Wallenpaupack plant supplies peaking hydro power and a popular vacation lake.



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LATE NEWS

A German official announced plans to close five eastern nuclear units and may halt building six others of Soviet design.

The first battery-powered bus in a mass transportion demonstration project debuted in Allentown, PA, Oct. 23. Sponsors are the state energy office, Pennsylvania Power & Light, Philadephia Electric, Metropolitan Edison, Pennsylvania Electric and Duquesne Light. A transit authority will operate the 16-passenger bus—made by Electric Vehicles S.A.—as a shopper shuttle.

Kansas City Power & Light Co. extended the $875 million-tender offer for Kansas Gas and Electric Co. until Nov. 30. About 47 percent of KG&E common stock had been tendered, KCP&L said.

Gas tax expected in a budget deal

WASHINGTON—The only energy-related tax left in budget discussions as of Oct. 24 was on gasoline. Negotiations are expected to produce a 5-7 cent hike.

As of Oct. 24, budget reconciliation appeared stalled on how much taxes on high income should be raised. The 1991 U.S. fiscal year started Oct. 1.

It would appear, that—despite several deadline extensions, overtime negotiations, and new taxes—budget additions will detract from the deficit-reduction effort. It also seems likely that the government will need to raise the debt ceiling to $5 trillion to stay solvent.

Nuclear Regulatory Commission users' fees are expected to jump from 45 to 100 percent, costing utilities an additional $2-3 million per reactor. Environmental Protection Agency permit user fees may raise $22-42 million.

Other items, another bill

Other items under consideration were added charges for abandoned mine lands, added fees or fines for OSHA and MSHA, and changes in tax rates and fund restrictions for nuclear decommissioning.

See *EL&P*'s December issue for more information.

In a separate bill that Bush is expected to sign, QF size restrictions are lifted from geothermal, wind and solar projects. Municipal waste projects will also have restrictions lifted.

New Clean-Air law near; Oct. 22 deal

WASHINGTON—The House and Senate were expected to vote Oct. 25, possibly as late as Oct. 30, on the most expensive clean-air proposal ever. A House-Senate committee compromised on the measure Oct. 22; if signed, as expected, by President Bush, it would be the first overhaul of clean-air law in 13 years.

The full measure eventually could cost utilities $5-7 billion per year, just for the acid-rain portion. Total costs, including wide-reaching regulations on industrial and auto emissions, and phasing out chlorofluorocarbon use, could amount to $25 billion annually. Costs are expected to be passed to consumers through utility rates and higher prices in consumer products.

Sulfur-dioxide emissions would be cut 10.8-million tons per year, and nitrogen oxides by 2-million tons per year by 2000. The bill includes an estimated added $150 million in pollution credits for utilities in Illinois, Indiana and Ohio, to help with a concentration of high-emission plants, for the emission-trading plan.

Industry sources say, although some details—such as $250 million in compensation for workers who would lose jobs from the legislation—differ from the Administration's original proposal, President Bush would be hard-pressed not to sign what Congress produces, despite any minor concerns.

Details of which provisions were in or out were still sketchy as of Oct. 24, *EL&P*'s final deadline for this issue. If the measure doesn't pass or is vetoed, seen as unlikely, it would certainly be reintroduced in the 103rd Congress, after November's election.

Edison Electric Institute said the bill defers costly new regulations for visibility and utility air toxic emissions unless and until mandated studies show they are needed. A 15-month extension to meet the stringent NOx guidelines would be allowed in some cases.

House and Senate conference committee negotiators resolved the toughest issues last, such as toxics, acid rain, emissions trading and enforcement. That may have been due, in part, to the congressional energy spent on budget details (see adjacent story.)

Even without the new law, years of talk and the imminent threat of passage have prompted utilities and regulators to improve air quality, revising strategies well into the next century.

Some utilities have planned their responses to the two phases of the pending legislation for more than a year, fuel switching and some projects are underway; the table, p.3, reviews various options covered in recent issues of *EL&P*. See additional coverage in December.

Top executives change at SCEcorp

After a 36-year career at SCEcorp and Southern California Edison Company, Howard P. Allen, chairman and CEO, retired on Oct. 1. The SCEcorp Board of Directors elected John E. Bryson chairman and CEO and Michael R. Peevey president. Bryson was executive vice president and chief financial officer, and Peevey was executive vice president prior to their promotions. Both joined the company in 1984.

John Bryson

Michael Peevey

1991 National Engineers Week

Paul E. Lego, chairman and CEO of Westinghouse Electric Corp., has been named honorary chairman of this week-long event held next Feb. 17-23, sponsored by 15 professional engineering organizations. The event will focus on engineering and the environment.

Lego expressed concern about recent comparisons that show American 13-year-olds scored lowest among industrialized nations in math and science skills. "The combination of lower birth rates plus a sharp decline in the number of students pursuing mathematics and science is beginning to create a shortage of engineers at the very time demand for technical solutions to environmental and other challenges is growing."

New EEI vice chairmen

Jerry Farrington of Texas Utilities and Edward Mitchell of Potomac Electric Power Co. were elected to the positions of first and second vice chairmen, respectively of EEI. Farrington also serves as chairman of the U.S. Council for Energy Awareness and is on the boards of the American Nuclear Energy Council and the Institute of Nuclear Operations.

Increased electrification could achieve energy independence

"The Arabs can shut off our oil, but they can't turn off our electric power," said B. R. Brown, president and CEO of Consolidation Coal Co., at a Virginia Coal Council dinner. Electric power generation has been based on American energy resources—coal, hydroelectric, nuclear and gas. Brown said, "Electricity is secure. The more we can substitute electricity for our daily energy needs, the less dependent we become on imported petroleum."

Brown went on to say, "the increased share of electricity in our energy budget has been a means of energy conservation," because of more efficient electricity generation, transmission and consumption, and more efficient appliances and equipment. "When we pass laws that slow electricity demand growth, we delay the development and implementation of newer, cleaner technologies," he said. "I propose we base our energy policy on electricity, not on some particular fuel, like coal. Our nation should get behind a policy to promote energy independence through electricity."

The Earth Light wins on innovation

Because it burns 13 times longer than a standard light bulb and consumes one-fourth the electricity, The Earth Light—an invention of the Philips Lighting Company—won *Discover Magazine's* inaugural "Discover award for innovation," in the environmental category.

The lamp is a compact fluorescent bulb that emits the same amount and quality of light as a standard 75-W but uses only 18 W of electricity. It burns an average of 10,000 hr and can be expected to last approximately seven years. Over its life, the bulb is anticipated to save consumers between $50 and $100 in costs.

Supertrees on public service forest land

The first commercially available white spruce "supertrees" were planted on hydroelectric flowage lands owned by Wisconsin Public Service, Green Bay. Supertrees will be ready for harvesting after about 50 years, whereas a wild spruce takes about 100 years. In addition to wood production, the trees may find a market for planters concerned about the growing accumulation of carbon dioxide in the atmosphere.

Public Service manages its lands for a balance of pulpwood, public recreation, wildlife habitat and hydropower production. Linus Stoll Public Service's CEO said, "The supertree symbolizes the creativity that we must pursue in finding ways to protect both the environment and the economy." He said the hydro lands are a fitting place for these trees, since they are managed under an "integrated planning process," sensitive to both the need to protect endangered species and the direct needs of society.

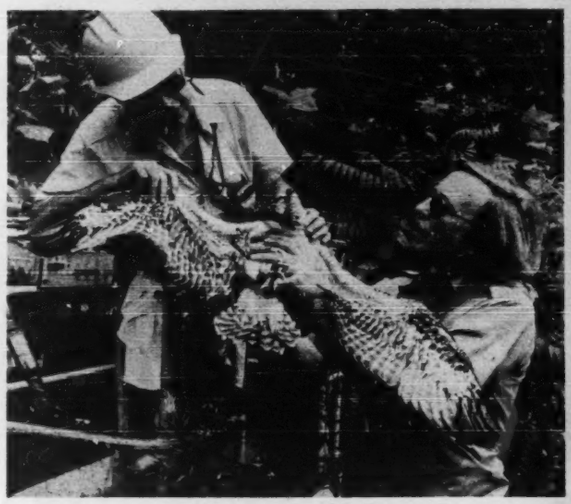
Neil Nelson, president of Forgene Inc., the tree's developer, said the new tree, named "elite white spruce hybrid," is the first conifer supertree to be made commercially available. Previous supertrees have been developed from the broadleaf poplar.

Arizona Public Service employees receive award at White House

The Arizona Public Service Co. Employee Volunteer Program recently received a national environmental award—a "Take Pride In America" plaque—from Interior Secretary, Manuel Lujan, Jr. during special ceremonies at the White House. The award was given to more than 500 employees, their families and friends, who cleaned, repaired and repainted the Pioneer Arizona Living History Museum, located north of Phoenix. The April 1989 undertaking was the largest single corporate volunteer effort in Arizona.

It is the second time the APS volunteers have won a White House award. Last year the group completed a massive roadside cleanup near the company's Palo Verde nuclear power plant that resulted in the collection of 16,000 pounds of trash and 1,500 pounds of recyclable aluminum cans from 14 miles of roadway near Palo Verde.

EPA Environmental Learning Award Recipient



Kim I. Mengel of Metropolitan Edison assists Larry M. Rymon of East Stroudsburg University in identifying a young osprey by attaching a leg band.

Metropolitan Edison Co. has received the 1990 Center For Environmental Learning Award from the U.S. EPA, Region III, for its support of an East Stroudsburg University program to reintroduce ospreys in its service territory. The ongoing 8-year program was recognized for creating new nesting sites, leading to a substantial increase in the number of ospreys making the MetEd area home after nearly 40 years' absence. The company was a major contributor to the production of a film about the project for use by conservation groups and schools in its territory.

Since 1982, MetEd has provided space for nesting facilities at its Portland Generating Station for osprey chicks taken from the Chesapeake Bay.

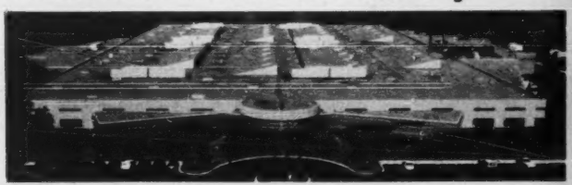
Steel transmission pole pioneer dies

Roy Meyer, retired, tough, nononsense former owner of Meyer Industries and developer of steel transmission poles for electric utility applications, died Sept. 29 in Red Wing, MN. Meyer, 78, was known throughout the industry for his innovation, dedication to customer service and absolute fairness. Meyer Industries now is operated as a subsidiary of FL Industries.

Correction

The Oregon Public Utility Commission staff recommended guidelines for competitive bidding, not Ohio as reported in "News Briefs" in the October issue, page 2. Ohio's regulatory staff is investigating bidding but isn't close to making a recommendation.

Pressure transmitter facility



This pressure transmitter manufacturing facility was dedicated recently by Rosemount Inc. near Minneapolis, MN. The 340,000-sq ft facility uses a "cellular" approach to manufacturing, rather than the production-line process. The cellular approach assigns teams of employees to the complete manufacture of given products rather than large numbers of employees, each doing just one task

In This Issue

Industry News

Clean Air legislation ignores reliability: NERC. 3
Soviets cut into U.S. uranium enrichment: Congressional action urged. 12
Special report: Pennsylvania Power & Light Co. wins Utility of the Year. 19

T&D Technology

Color-coded maps aid line crews. 27
Breakaway pole reduces damage and injuries. 27
Selecting batteries: An application primer. 30
Automatic Meter reading takes giant step forward. 34

Generation Technology

Leaking canopy seal welds can be fixed more easily with this device. 36
Millstone went to electronic publishing to improve its operations. 36

Regular Features

Commentary and **Letters** 4
Rate Activity 16
Financial Performance 17
Labor/Management Concerns 26
Information/Control Systems 35
New Products, New Literature 48,56
Readers' Service 51
Calendar 54
Management Methods 59
Regulatory Review 60

Clean Air legislation threatens reliability, NERC says

PRINCETON, NJ—The impending Clean Air Act amendment is "the most significant threat to reliability" among environmental concerns, said the North American Electric Reliability Council (NERC).

In addition, NERC's *1990 Reliability Assessment* slammed Congress, the administration, regulators and other policymakers for transmission restrictions due to EMF concerns, disincentives for utility investment in large capital projects and added utility hydroelectric constraints.

These and others restrictions have limited facility use or have contributed to a lack of construction that severely risks system reliability, NERC said. Construction hasn't begun on 55 percent of the new generating capacity previously announced for the next 10 years in the U.S., up from 41 percent in 1989 and 30 percent in 1988.

Regarding the Clean Air Act, NERC said, "This legislative effort appears to be advancing with little regard for the profound effects it will have on the adequacy of installed generating capacity, the ability and/or inclination of utilities to render emergency assistance to neighboring systems, and the viability of capacity transactions as a resource option."

NERC stressed vehemently that the Clean Air Act revisions would:

- Delay approval or commissioning of new facilities.
- Place constraints on current facilities that will limit output.
- Reduce capacity margins.
- Increase the risk of customer service interruptions.
- Provide little or no significant environmental or health benefits.

"The resultant impacts on system reliability and costs may have negative effects on electricity use, economic growth, lifestyles, and the standard of living," the report said.

The legislation would create profound regional disparities. With acid gas emissions, for example, "The Eastern Interconnection would bear most of the brunt as about 92 percent of the effects are postulated to be in that area."

NERC also reiterates the Department of Energy's concern that funds for, and investment in, the Clean Coal Technology Program would be diverted because of the need to upgrade existing utility facilities.

NERC expects premature retirement of some plants that would require modifications not considered routine.

Operating complexities due to the necessity of emissions dispatching may stress certain transmission lines and interfaces now close to transfer limits "with increased risks to system security in the event of severe disturbances."

Other issues cut reliability

The report also covers reliability issues relating to:

- *Electric and magnetic fields:* Despite weak evidence of low correlation between EMF and adverse health, planned transmission lines have been delayed or cancelled; others have been removed.
- *Carbon dioxide emissions:* No scientific consensus exists regarding links between carbon dioxide emissions from burning fossil fuels, recent droughts and the alleged warming of the earth's atmosphere. NERC calls for more study before policies are made—no power supply now, or in the foreseeable future, can adequately replace fossil generation.
- *Hydroelectric capacity:* New river regulation requirements for recreation and water oxygen levels could severely restrict certain facilities. Northern Arizona's 1300-MW Glen Canyon hydro complex stands to lose 200-600 MW of peaking capacity, NERC cited.
- *Fuel supply adequacy:* Indicators suggest uncertainties regarding future availability and deliverability of natural gas and low-sulfur residual fuel oil. Inability to obtain firm, long-term natural gas contracts from suppliers raises additional concerns.
- *Regulatory disincentives:* Rate-base disallowances, "along with regulatory delays, inconsistent public policies, and overlapping jurisdictions have resulted in many utilities being reluctant and sometimes unable to commit to major long-term generation or transmission projects."

More next month

The 80-page report, released Sept. 27, covers the future of bulk system reliability in North America from 1990-99. NERC, formed in 1968, coordinates efforts in, communicates information about, and promotes reliability of generation and transmission systems.

December's *EL&P* will provide a regional assessment of reliability and graphics showing demand trends.

System Options (Nontechnology)

- Buying/selling allowances
- Unit retirement/replacement
- Emission dispatch
- Bulk power purchases/sales
- Demand-side management
- Conservation
- IPP
- Trade pollutants ($NO_x \rightleftarrows SO_2$)
- Mergers and acquisitions
- Over- or undercompliance

Repowering/ Performance Improvement

- Atmospheric fluidized bed combustion
- Pressurized fluidized bed combustion
- Integrated gasification combined cycle

Fuel Options

- Switch fuels
  - Low-sulfur coal
  - Natural gas
  - Co-firing

SO_2 Control Technology

- Conventional wet FGD
- Regenerative wet FGD
- Spray dry FGD
- Furnace dry sorbent injection
- Postfurnace dry sorbent injection

- Conventional wet FGD
- Switch fuel
  - Low-sulfur coal
  - Natural gas

NO_x Control Technology

- Low NO_x burners
- Overfire air
- Reburning (coal/gas)
- Selective noncatalytic reduction
- Selective catalytic reduction

Source: Temple, Barker & Sloane Inc.

Ontario Hydro hit by fine after workers' exposure

TORONTO—Ontario Hydro was fined C$18,000 by Ontario Provincial Court after admitting responsibility for the most severe radiation exposure accident ever at a Canadian utility.

The utility pleaded guilty in August to four charges filed by the Atomic Energy Control Board (AECB) after the accident a year earlier at the Pickering Nuclear Generating Station east of Toronto. A fifth charge was dropped through plea bargaining.

Both government and defense lawyers recommended a $4,500 fine on each count. (The maximum fine allowable is $5,000 per count.)

The utility pleaded guilty to one count of failing to take "all reasonable precautions" in training for and execution of the task performed by the men and three counts of allowing overexposure to radiation, one for each of the three workers.

The fifth charge was for failure to assess the radiation dose the workers would incur and to gain proper approval for work done in a radiation field exceeding 3 rem/hr. Hydro's Radiation Protection Regulations, referenced in the Pickering Operating License issued by AECB, requires the station's senior health physicist to approve the full work plan for all tasks in radiation fields expected to exceed 3 rem/hr. Approval apparently was not sought in this case.

The accident occurred when the three mechanics were removing an adjuster rod from the core of Reactor Unit 1. The crew used a connector tool (a "shielding donut") they believed would protect them from the gamma radiation emitted by the cobalt rod. However, the connector was only a training ring, which closely resembled a real shield but was built for instructional use only.

The safety report on the accident recommended improvements in Hydro's system of managerial procedures and coordination, and in equipment design. The report concluded that the accident would not have occurred if the adjuster rod had been removed remotely, and if rehearsal tooling was properly identified. "The risks associated with performing this job manually were underestimated," the report states.

In the August 1989 accident, the mechanic who was surveying radiation fields near the adapter ring received a whole-body dose of 12.7 rem. This exposure more than doubled the AECB occupational limit of 5 rem/yr and was the highest ever recorded at a Canadian power reactor.

The second man received the next-highest recorded dose, 9.2 rem, while the third worker absorbed 2.2 rem.

Hydro's whole-body dose target limit for Pickering was 2 rem/yr until 1990, when it was reduced to 1.8 rem/yr.

The highest extremity doses (to a foot or hand) to each of the men were 73.4, 10.3 and 73.8 rem, respectively. AECB's annual limit for maximum extremity dose is 75 rem.

The data was developed by Hydro from the dosimeters worn by the three workers, and from accident reconstruction techniques.

Picking up the pieces

Pickering Production Manager Bob Schuelke said safety changes since the accident include painting rehearsal equipment a different color from nuclear equipment and motorizing the rod-removal process, which allows adjuster rods to be withdrawn from the reactor by remote control.

He stressed, "Our management system was seriously wrong to allow this accident to happen. We have improved our whole procedure for storing and cataloging equipment, and have reformed our job orientation to give workers greater input into the design and planning of plant tasks."

A first

The ACEB's prosecution of Ontario Hydro was the first ever initiated against a nuclear utility, said Board President Rene Lévesque. He added that the deterrent value of the ACEB's prosecutions would be enhanced by large increases in the now-small fines set by its enabling legislation, the Atomic Energy Act of 1946. The only way to raise these penalties, however, is by government cabinet intervention leading to a change in the legislation.

Without suitable financial penalties, the only other course open to AECB is to revoke or amend existing licenses, or to withhold new ones—but the process is cumbersome. Lévesque said AECB needs a sanctions package better tailored to deterring day-to-day violations in the nuclear industry.

CECo settles fire outage damages, extends Chicago franchise by 1 year

CHICAGO—Commonwealth Edison Co. will pay an estimated $4 million in damages to customers of West Side outages caused by substation fires July 28 and Aug. 5 named in a class action suit, under a preliminary Cook County Chancery Court decision. Payments range from $20-190, under the plan.

The suit was brought, in part, because the fires affected many of the same customers, for as long as three days. (*EL&P*, Sept.'90,p.1).

The company said the decision was fair and was not precedent-setting because of the rare circumstances involved. Negligence did not cause the fires, CECo maintained.

In other news, Chicago's city council is scheduled to vote on CECo's one-year franchise extension Oct. 31, previously agreed to by Mayor Richard M. Daley and the company. The mayor questioned the company's reliability, saying he wants to wait to see the outcome of several investigations relating to the fires before a long-term extension.

If approved, CECo's continues payment of its municipal franchise fee, 4 percent of the company's gross revenues in the city—in 1990, an estimated $66 million. The franchise is due to expire Dec. 31.

Sale completed

DULUTH, MN—Minnesota Power Co. completed the sale of 20 percent of its 500-MW coal-fired Clay Boswell Station Unit 4 to The Wisconsin Public Power Inc. System (WPPI) of Sun Prairie, WI, for $84 million.

The sale adds 38 cents per share to '90 MP earnings. WPPI made wheeling arrangements.

Correction

CHICAGO—Long Island Lighting Co.'s 1500-MW Northport plant was incorrectly called the largest U.S. oil-fired station (*EL&P*, Oct.,p.1). Commonwealth Edison Co.'s five-unit Collins plant in Morris, IL, totals 2698 MW.

COMMENTARY

Who's next? Keep us informed

In this issue, *EL&P* congratulates Pennsylvania Power & Light Co. for winning the 22nd Electric Utility of the Year Award (p.19).

Another investor-owned utility asked recently, "How do we get nominated for Utility of the Year?" The answer is, "Deliver what every utility strives for: outstanding results for customers, shareholders, employees, communities, and innovation in the industry. And inform us of your progress."

EL&P's year-round information-gathering process provides editors with a fine decision-making base—we use information from *EL&P*'s January Annual Capital Investment Forecast, May's Annual Report Review, June's Top 100 Electric Utility Financial Performance, and August's Top 100 Electric Utility Operating Performance, monthly columns, as well as information from focus reports, and other financial and technology coverage. Editors meet in July to discuss prospects. During a series of August meetings, editors nominate, research, and investigate candidates, then choose the winner, after analyzing all aspects of what it really means to "provide safe and reliable electric service."

Remember reliability?

An adequate supply of reliable electricity has become so taken for granted, it may become an endangered species. The North American Electric Reliability Council's *1990 Reliability Assessment* blames policymakers for short-sighted thinking that continues to restrict adequate utility investment in supply and delivery capacity (p.3).

NERC points out that the gap in planning and construction widened over the past year. Building hasn't begun on 55 percent of the new generating capacity previously announced for the next 10 years in the U.S., an increase from 41 percent in 1989 and 30 percent in 1988. Is a crisis the only way to manage an equitable solution? Let's hope not.

In related commentary, opponents of the Trojan nuclear plant say there's no reliability problem if a voter referendum closes the plant—utilities can use Bonneville Power Administration capacity. Do you suppose those same people also oppose flooding additional land in Washington or British Columbia for increased hydro capacity? And one comment from abroad... A German official announced plans to close 1730 MW of operating East German reactors, with the possibility of cancelling six other units under construction, because they're all of Soviet design. Is safety the only issue, or has public pressure defeated any engineering efforts toward a more cost-effective solution?

Thanks, NERC, for doing your part to protect what seems to be an increasingly endangered species, electric reliability.

And thank you, Congress

Utilities challenge themselves and each other to do more with less. Congress is doing less with more. Despite all discussions of budget cutting, representatives didn't touch their scheduled salary hike. House wages will increase from $96,600 to $125,100 on Jan. 1. Senators' wages will increase as well.

Even President Bush, considered a Washington insider, couldn't resist jabbing the Capitol Hill debacle at an October campaign stop. He said, "It's Congress' responsibility to pass a budget, and year after year they fail to do so."

Congressional incumbents continue to wax eloquently about what a wonderful job they've done. Voters need to connect those people to the institution. Congress misses budget deadlines, bickers endlessly, and fails to make meaningful deficit reductions. It collects more taxes, finds more ways to spend what it doesn't have, and raises the debt ceiling. It waits until the last minute to hammer out myriad complexities of the Clean Air bill, but squeezes in legislation to help out constituencies and special interests days before the election.

Given the condition of congressional "efficiency," *EL&P* readers shouldn't miss the Nov. 6 ballot-box deadline. Thank Congress for all it's done for you. (...or to you.)

—Mark T. Hoske, News Editor

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LETTERS

Lighting fixture warranties

I have read with concern recent promotions for warranties on lighting fixtures that could be misleading your readers. At first glance, it seems that the manufacturer is warranting the entire fixture for 5 years, when, in fact, the 5-year warranty applies only to the ballast—or the fixture's electrical system.

Most of the time, lighting manufacturers offer a 1-year warranty on their fixtures, which covers both materials and workmanship. If a unit is defective, the manufacturer will correct the defect, at no cost, by repairing the unit or providing replacement parts. This guarantee is good for 1 year beyond the date of manufacture.

In Holophane's case, all fixtures are warranted for 2 years and the HID electrical components for 5 years.

We feel that a promotion that implies that the entire fixture is warranted for 5 years is misleading and costly. If something goes wrong with a unit after 1 year that does not involve the electrical system, the customer is on his own. He must bear the expense and the inconvenience of getting that fixture fixed or replaced.

As always, it pays to read the fine print in a warranty. It can save a lot of time, grief and money.

John Forbes
Vice President, Marketing
Holophane Company Inc.
Newark, OH

Photovoltaic efficiencies

"Commentary" (May 1990, p. 4) on "Photovoltaic efficiencies improved; the gap is narrowing" must have additional engineering clarification, in order to avoid being a grossly misleading criterion for solar cell development "before becoming a potential substitute...for conventional generation." Solar insolation, fuel-conversion efficiency and heat-rate conversion efficiencies in fossil- or mineral-fueled plants simply do not have similar impacts on the design and economics of large-scale electric generation. It is plain wrong to infer some efficiency criterion for realization of solar voltaic generation (SVG) in the nation's electric power mix based on approaching the fuel conversion efficiencies of conventional generation.

The long-standing heat-rate contest, that *EL&P* regularly reports, is critical in conventional boiler fuels as the cost of oil, coal, gas and yellow cake escalate and are pushed through regulators to consumers. The fuel for a utility SVG plant is free, delivered at any plant site for as long as we need it; century-life plants with periodic upgrade of the cell panels, generator modules for increased plant capacities and revenue return as cell manufacturers improve their product.

Just as plant capital investment is impacted by a better heat rate for a given amount of plant site land, manufacturing, site construction and O&M, so also does fuel conversion efficiency in solar voltaic cell modules impact the SVG land area, array materials, erection maintenance, power extraction to the transmission and the energy management subsystems. SVG cell modules at, say, 14-percent fuel conversion efficiency mounted along access track rows, have a plant density of about 150 MW (installed nameplate capacity) per section of land. And with cogeneration, kilowatts plus crops at about 85 percent of normal on tilled land, allows efficient agri-automation along the rows of access track, automated agriculture powered by the array. Realizing the 26-percent efficiencies cited in [the] *EL&P* "Commentary" extrapolates to about 278 MW capacity on each square mile of plant array, an obvious benefit in reducing plant investment cost.

Consider today's 150 MW per section density, at an annual capacity factor of 0.25 to 0.30 since [SVG] fuel supply is reduced by clouds and to zero at night, then concentrated in a single plant in the Southwest's high solar-[insolation region]. Here an SVG array area of only 93 miles by 93 miles would supply 2,854,168 GWh, equal to the 1989 output of the nation's electric utility industry (*Power Engineering*, April 1990)—or GWh equal to the '89 utilities' output from a square patch only 68 miles on a side with the reported 26 percent solar fuel conversion plants.

EL&P "Commentary" on the "narrowing cost-competitive gap" begs the question of what an SVG cell module would cost. At about 14-percent fuel conversion efficiency, a square-meter generator module is rated 0.014 kW. Drawing a mass production example from a comparable electric device, the ubiquitous 4-ft fluorescent tube, often at 99¢ retail, half coated with photovoltaic material, requires 21.5 PV tubes for that 0.14-kW SVG; anticipating a $150/kW SVG plant generator subsystem—$82/kW for the improved 26 percent photovoltaic materials in the PV tube. Then add subsystems for station and transmission structures, energy extraction, and energy management (perhaps another $500/kW) with the SVG increments going online as delivered to the site avoiding interest during construction. [In other words,] balance of system can outlast a series of generator subsystem retrofits by many decades. Echoing "Commentary, the gap is narrowing...and one day, perhaps within five years, who knows...?"

Alfred H. Canada
Consultant
Grants Pass, OR

P.S. I was tempted to add "John Sununu knows!"

Filer City contractor

In the August 1990 issue of *Electric Light & Power*, page 47, a picture and brief description of the Filer City Cogeneration Facility appeared. The part about the general contractor was in error. The EPC contractor is a joint venture between Southern Electric International (SEI) and Fluor Daniel with SEI responsible for project management.

We would appreciate very much a correction being printed in the earliest possible issue. Thanks for your attention.

Randy W. Kirkus
Senior Project Manager
Southern Electric International
Atlanta, GA

Editor's Note: EL&P thanks reader Kirkus for correcting our August story and apologizes to both SEI and Fluor Dantel for the error.

Alcan to open new West Coast plant

ATLANTA—Alcan Cable announced plans to build a $20-million plant in Roseburg, OR. J. R. Frangipane, president, said,"Our westernmost plant is now in Sedalia, MO, so this new plant will enable us to better serve West Coast customers. James Mann, a veteran of 23 years with Alcan Cable will be Project/Plant Manager.

Dept. of Energy greenlights two Clean Coal projects

WASHINGTON—Two new Clean Coal projects became the 25th and 26th to be negotiated by the Dept. of Energy.

Bechtel Corp. will demonstrate a low-cost method for reducing sulfur-dioxide pollutants, and EER Inc. will investigate techniques for lowering nitrogen oxides.

CZD in Pennsylvania

Bechtel will demonstrate confined-zone dispersion (CZD) at Pennsylvania Power & Light Co.'s Seward Station. CZD avoids the expense and space needed for a scrubber by capturing pollutants inside a plant's ductwork. Although not as effective as a scrubber, CZD may allow many existing power stations to remain operating longer.

Atomizers inject a fine spray of water and sulfur-absorbing lime into the ductwork between a boiler's air heater and particulate-removal equipment. The positioning of the atomizers creates a cone-shaped confined zone of wet particles surrounded by an envelope of hot combustion gases.

As the "cone" moves through the duct, the gas inside cools and SO_2 is absorbed by the droplets. The droplets mix with the hot gases outside the cone and dry quickly. They then can be removed by existing particulate collection equipment.

Gas reburning

EER will expand its work on gas reburning at Public Service of Colorado's Cherokee Power Station.

Natural gas will be added to coal combustion products above the main coal-combustion zone. In this fuel-rich reburn zone, hydrocarbon fragments from the gas react with nitric oxide to form nitrogen. Air to complete combustion is added above the reburn zone at temperatures low enough to prevent additional NOx formation.

Air filter sales, regulations to grow

NEW YORK CITY—Stricter air quality guidelines from the federal government will breathe new life into the air filtration market.

To grow or not to grow

Near-term, according to a 241-page report from Frost & Sullivan Inc., the "determinant of market volume will be U.S. industry's need to have engineering controls in place by 1993 to achieve compliance with OSHA's tighter in-plant air-quality standards, the so-called 'Pell Standards,' issued in 1989." It also cautions, however, that "the fragility of the domestic industrial economy will act as a drag on potential filtration growth."

The air filters market is examined from the viewpoint of 10 principal end-user industries (see chart) and eight major product categories, forecasting growth to 1994. Electric utilities generated $90 million, or 13 percent of sales demand, in 1989.

The competitive environment is looked at through profiling major suppliers. The seven largest of these vendors control almost 60 percent of all sales in the country.

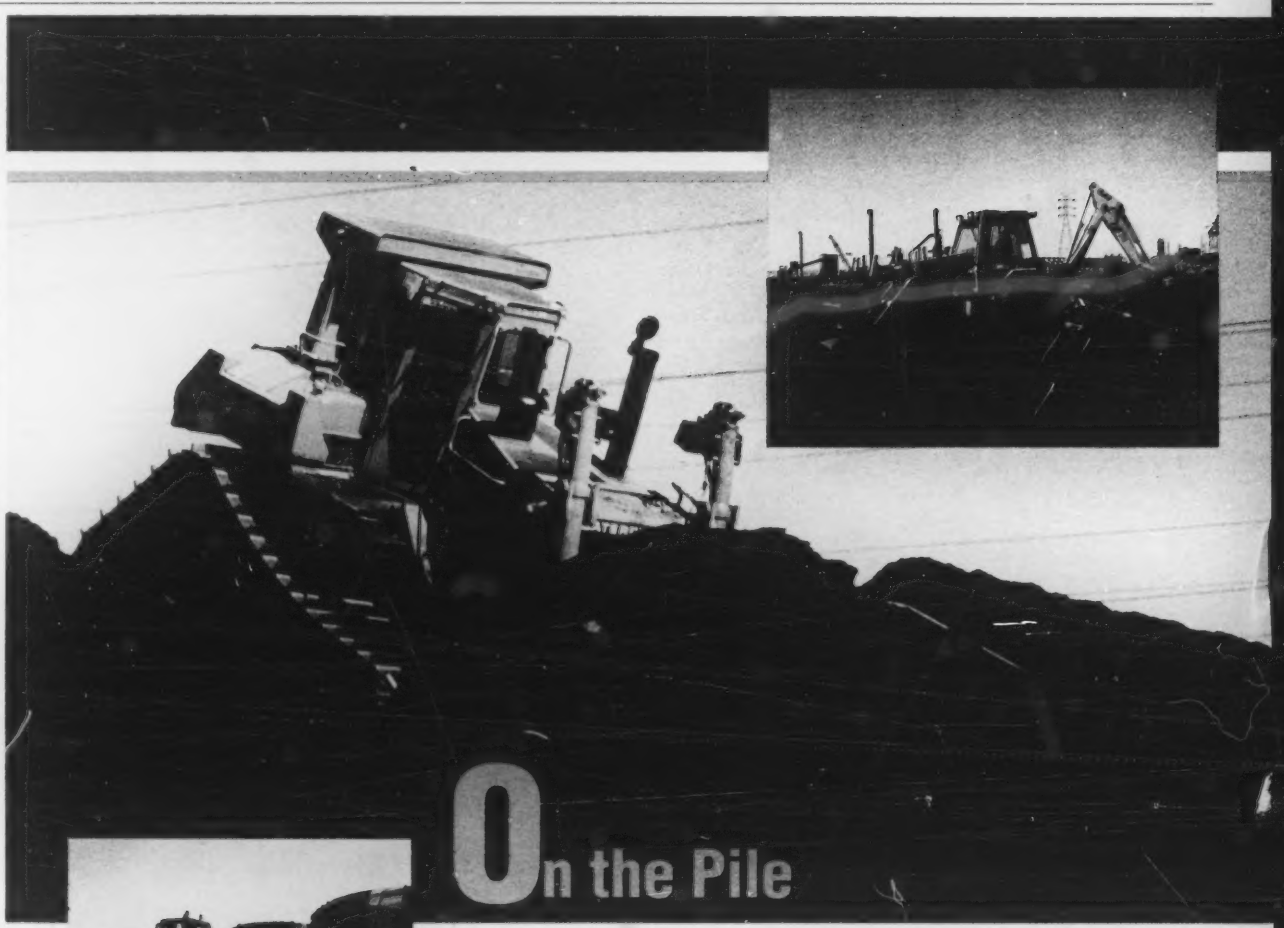
Types and growth

ASRAE-rated filters accounted for 36 percent of the market, or $245 million, in 1989. Demand for them is predicted at $288 million in '94.

High-efficiency air-particulate (HEPA) filters comprised 26 percent of the 1989 market, or $181 million. This category of filters is predicted to grow fastest due to higher sales of disk drives and the need for better clean-room technologies as semiconductor manufacturers move deeper into submicronic geometries. HEPAs are expected to be a $228 million sector by 1994.

Dust collectors, electronic air cleaners and carbon filters sold at $65 million, $50 million and $41 million, respectively, in '89. By '94, dust collectors will rack up $78-million worth of sales; electronic air cleaners, $61 million; and carbon filters, $50 million.

"The U.S. Market for Industrial Air Filtration (IAF) Equipment," Report #A2348, costs $3,000 and is available by contacting: Customer Service, Frost & Sullivan Inc., 106 Fulton St., New York, NY 10038; phone 212/233-1080.



On the Pile

or Around the Powerhouse...

...you never know what job will surface next. Handling and stockpiling coal is a challenge in itself, but those odd jobs that pop up around every corner can really drive a manager crazy!

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Cat® IT12, IT18B and IT28B Integrated Toolcarriers. Each model can be equipped with four sizes of general purpose buckets, or a high-capacity coal bucket. They can do anything a wheel loader can, then perform an endless variety of tasks by switching to any of almost 100 different tools...forks, dozer blades, snow plows, brooms, material handling arms, or even a claw-like grapple called a Tire Hand. Equipped with a quick coupler, these machines can change tools in less than 30 seconds.

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